#684

PIONEER VENUS 1

HIGH RESOLUTION MAGNETOMETER/ELECTRIC FIELD DATA
WITH POSITION AND ATTITUDE DATA

78-051A-12H
78-051A-13F

REQ. AGENT
DHG
CMW

RAND NO.

ACQ. AGENT
PSB

PIONEER VENUS 1
HIGH RESOLUTION MAGNETOMETER/ELECTRIC FIELD DATA
WITH POSITION AND ATTITUDE DATA
78-051A-12H/13F

This data set catalog consists of 47 tapes. The tapes are 9-track, 6250 BPI, multi-filed and were created on a VAX 11/780. The tapes were originally received in VAX BACKUP format. They were restored and put on labeled tapes. Each binary data file (which has the extension .FFD) is followed by a short ASCII description file (with the extension .FFH). The D and C numbers, file information, tape label ID and time spans follow:

* Original (D#) tapes not restored is marked with an asterisk.

D#	C#	VAX LABEL	FILES	TIME SPAN
D-079509	C-027581	PV0001	450	12/05/78 - 07/17/79
D-079510	C-027582	PV0001	900	12/05/78 - 07/17/79
D-079511	C-027583	PV0226	390	07/18/79 - 02/28/80
D-079512	C-027584	PV0226	390	07/18/79 - 02/28/80
D-079513	C-027585	PV0226	390	07/18/79 - 02/28/80
D-079514	C-027586	PV0451	294	02/29/80 - 04/17/80
D-079515	C-027587	PV0500	600	04/18/80 - 07/26/80
D-079516	C-027588	PV0600	900	07/27/80 - 12/23/80
D-079517	C-027589	PV0750	702	12/24/80 - 05/23/81
D-079518	C-027590	PV0900	896	05/24/81 - 10/20/81
D-079519	C-027591	PV1050	300	10/21/81 - 12/09/81
D-079520	C-027592	PV1100	600	12/10/81 - 03/19/82
D-079521	C-027593	PV1200	892	03/20/82 - 08/16/82
D-079522	C-027594	PV1350	594	08/17/82 - 12/24/82
D-079523	C-027595	PV1481	710	12/26/82 - 04/23/83
D-079524	C-027596	PV1600	894	04/24/83 - 09/20/83

78-051A-12H/13E

D#	C#	VAX LABEL	FILES	TIME SPAN
D-079525	C-027597	PV1750	900	09/21/83 - 02/17/84
D-079526	C-027598	PV1900	738	02/18/84 - 07/16/84
D-079527	C-027599	PV2050	850	07/16/84 - 12/12/84
D-083247	C-029209	P2200	568	12/13/84 - 03/22/85
* D-083248	C-029210	P2300	562	03/23/85 - 06/30/85
* D-083249	C-029211	P2400	520	07/01/85 - 10/08/85
* D-083250	C-029212	P2500	454	10/09/85 - 12/25/85
* D-096128	C-030635	H2601	506	01/30/86 - 04/26/86
* D-083251	C-029213	P2700	602	04/27/86 - 08/06/86
* D-096129	C-030636	H2801	592	08/06/86 - 11/14/86
* D-096130	C-030637	H2901	588	11/14/86 - 02/22/87
* D-083253	C-029215	P3001	592	02/22/87 - 06/02/87
D-083254	C-029216	P3101	430	06/03/87 - 09/10/87
* D-083255	C-029217	P3201	600	09/11/87 - 12/19/87
* D-083256	C-029218	P3301	592	12/20/87 - 03/28/88
* D-083257	C-029219	P3401	562	03/29/88 - 07/06/88
* D-083258	C-029220	P3501	574	07/07/88 - 10/14/88
* D-086018	C-029204	HIRE36	578	10/16/88 - 01/22/89
* D-086019	C-029205	HIRE37	406	01/23/89 - 05/01/89
* D-086020	C-029206	HIRE38	600	05/03/89 - 08/10/89
* D-086021	C-029207	HIRE39	572	08/11/89 - 11/18/89
* D-086022	C-029208	HIRE40	572	11/19/89 - 02/26/90
* D-096131	C-030638	H4101	584	02/27/90 - 06/06/90
* D-096132	C-030639	H4201	588	06/07/90 - 09/14/90

78-051A-12H/13E

D#	C#	VAX LABEL	FILES	TIME SPAN
* D-096133	C-030640	H4301	370	09/15/90 - 12/23/90
* D-096134	C-030641	H4401	566	12/24/90 - 04/02/91
* D-096135	C-030642	H4501	590	04/03/91 - 07/11/91
* D-096136	C-030643	H4601	554	07/12/91 - 10/19/91
* D-096137	C-030644	H4701	586	10/20/91 - 01/27/92
* D-096138	C-030645	H4801	590	01/28/92 - 05/05/92
* D-096139	C-030646	H4901	652	05/07/92 - 10/07/92

78-051A-12H/13E

LOCATION OF DATA FILES BY ORBIT

D#	C#	FILES			
		POS/ATT	E FIELD	B FIELD	TOTAL
D-079509	C-027581	--	1-450	--	450
D-079510	C-027582	1-450	--	451-900	900
D-079511	C-027583	1-390	--	--	390
D-079512	C-027584	--	1-390	--	390
D-079513	C-027585	--	--	1-390	390
D-079514	C-027586	1-98	99-196	197-294	294
D-079515	C-027587	1-200	201-400	401-600	600
D-079516	C-027588	1-300	301-600	601-900	900
D-079517	C-027589	1-238	239-472	473-702	702
D-079518	C-027590	1-300	301-598	599-896	896
D-079519	C-027591	1-100	101-200	201-300	300
D-079520	C-027592	1-200	201-400	401-600	600
D-079521	C-027593	1-300	301-596	597-892	892
D-079522	C-027594	1-198	199-396	397-594	594
D-079523	C-027595	1-238	239-474	475-710	710
D-079524	C-027596	1-298	299-596	597-894	894
D-079525	C-027597	1-300	301-600	601-900	900
D-079526	C-027598	1-250	251-494	594-738	738
D-079527	C-027599	1-286	287-568	569-850	850
D-083247	C-029209	1-196	197-382	383-568	568
D-083248	C-029210	1-194	195-378	379-562	562
D-083249	C-029211	1-188	189-354	355-520	520
D-083250	C-029212	1-170	171-314	315-454	454
D-096128	C-030635	1-174	175-342	343-506	506
D-083251	C-029213	1-202	203-402	403-602	602

78-051A-12H/13E

D#	C#	FILES			
		POS/ATT	E FIELD	B FIELD	TOTAL
D-096129	C-030636	1-200	201-396	397-592	592
D-096130	C-030637	1-200	201-394	395-588	588
D-083253	C-029215	1-196	197-394	395-592	592
D-083254	C-029216	1-142	143-286	287-430	430
D-083255	C-029217	1-200	201-400	401-600	600
D-083256	C-029218	1-196	197-394	395-592	592
D-083257	C-029219	1-194	195-378	379-562	562
D-083258	C-029220	1-190	191-382	383-574	574
D-086018	C-029204	1-198	199-388	389-578	578
D-086019	C-029205	1-140	141-274	275-406	406
D-086020	C-029206	1-200	201-400	401-600	600
D-086021	C-029207	1-192	193-382	383-572	572
D-086022	C-029208	1-200	201-386	387-572	572
D-096131	C-030638	1-200	201-392	393-548	584
D-096132	C-030639	1-200	201-394	395-588	588
D-096133	C-030640	1-126	127-248	249-370	370
D-096134	C-030641	1-190	191-378	379-566	566
D-096135	C-030642	1-198	199-394	395-590	590
D-096136	C-030643	1-186	187-370	371-554	554
D-096137	C-030644	1-198	199-392	393-586	586
D-096138	C-030645	1-198	199-394	395-590	590
D-096139	C-030646	1-220	221-436	437-652	652

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INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS
LOS ANGELES, CALIFORNIA 90024

July 8, 1987

Dr. James L. Green
Head, National Space Science Data Center
Goddard Space Flight Center, Code 633
Greenbelt, Maryland 20771

Dear Jim:

This note is in response to your request for updated information on NSSDC-held data sets.

To the computer printout for Pioneer-Venus magnetometer data, included with your letter, you should add "Hi-res periapsis data on tape" which is being sent to you as we generate it. You should have already received these data for 39 orbits, but they do not appear in your list. If you cannot find these data please contact us at once. All of the other items on the list appear to be accurate as is.

We feel the set of data products that we have sent you is quite complete. At this time we do not intend to send you additional sets of data.

Sincerely yours,

C. T. Russell

CTR:pr
Enclosure

78-051A-12A/13F

D1

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes for First Venus Year.

Enclosed are six tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 2601-2699(1986 Jan 30 - 1986 Apr 26), 2801-3000 (1986 Aug 6 - 1987 Feb 22), and 4701 - 5055 (1991 Oct 19 - 1992 Oct 7), one PVO orbit/24 hours).

The tapes were written using BACKUP on a VAX computer running the VMS operating system. The tape can be restored by entering the following command on a VMS system: 'BACKUP MTA0:/SAVE *.*' (where MTA0: is the tape drive device name).

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 72 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns. The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time.

Prior to orbit 3602, Oct 16, 1988, the magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The spin-plane magnetometer sensors failed during orbit 3602, and so after this orbit, the magnetic field data columns contain only the Bz compnenet of the magnetic field.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

For more information contact: Muriel Kniffin
Inst. of Geophysics & Planetary Phy.
Univ. of Calif, Los Angeles
Los Angeles, CA 90024
(310) 206-9955

SPAN: BRUNET::MURIEL

There is no data available for the following orbits:

PVO Electric field data:
2600-2612, 2615, 2674
2834, 2890
2938, 2952, 2980, 2999
4741, 4764, 4792
4825, 4860
4902-4908, 4924, 4927-4960, 4981,4982,4992,4993
5027

PVO Magnetic field data:
2600-2612, 2615, 2621, 2665, 2673, 2674

D2

2834, 2890
2938, 2952, 2980, 2999
4741, 4764, 4792
4825, 4860
4902-4908, 4924, 4927-4960, 4981,4982,4992,4993
5027

PVO Ephemeris data:
2982
4741
4860
4902-4908, 4924, 4927-4960, 4981,4982,4993

D3

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes for First Venus Year.

Enclosed are ~~five~~ six tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 4101 - 4700, which occured from Feb 26 1990 to oct 19 1991 (one PVO orbit/24 hours).

The tapes were written using BACKUP on a VAX computer running the VMS operating system. The tape can be restored by entering the following command on a VMS system: 'BACKUP MTA0:/SAVE *.*' (where MTA0: is the tape drive device name).

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 72 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns.
The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time.

Prior to orbit 3602, Oct 16, 1988, the magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The spin-plane magnetometer sensors failed during orbit 3602, and so after this orbit, the magnetic field data columns contain only the Bz compnenet of the magnetic field.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

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SPAN: BRUNET::MURIEL

There is no data available for the following orbits:

PVO Electric field data:
4124, 4139, 4195, 4198
4249, 4257, 4261
4303, 4333-4365, 4367, 4370, 4379, 4380, 4390, 4400
4402, 4427, 4449, 4454, 4487, 4494
4531, 4559
4677 - 4682, 4689, 4695

PVO Magnetic field data:
4124, 4139, 4195, 4198
4249, 4257, 4261
4303, 4333-4365, 4367, 4370, 4379, 4380, 4390, 4400

D4

4402, 4427, 4449, 4454, 4487, 4494
4531, 4559
4677 - 4682, 4689, 4695

PVO Ephemeris data:
4303, 4310, 4331, 4333-4365, 4367, 4379
4449, 4487, 4494
4531
4678-4682, 4689, 4695

March 12, 1991

D5

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes.

Enclosed are 6 tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 3001 - 3600, which occurred from Feb 23, 1987 to Oct 14 1988 (one PVO orbit/24 hours).

The tapes were written using BACKUP on a VAX computer running the VMS operating system. The tape can be restored by entering the following command on a VMS system: 'BACKUP MTA0:/SAVE *.*' (where MTA0: is the tape drive device name).

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 72 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns. The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time. The rest of the data columns in each binary record are single precision floating point.

The magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

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SPAN: BRUNET::GORDON

78-05IA-12H/13F >

D6

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes for First Venus Year.

Enclosed are five tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 3602 - 4100, which occured from Oct 16 1988 to Feb 26 1990 (one PVO orbit/24 hours).

The tapes were written using BACKUP on a VAX computer running the VMS operating system. The tape can be restored by entering the following command on a VMS system: 'BACKUP MTA0:/SAVE *.*' (where MTA0: is the tape drive device name).

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 72 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns. The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column. Copies of the descriptor files for orbit 3602 are enclosed.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time.

Prior to orbit 3602, Oct 16, 1988, the magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The spin-plane magnetometer sensors failed during orbit 3602, and so after this orbit, the magnetic field data columns contain only the Bz compnenet of the magnetic field.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

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SPAN: BRUNET::MURIEL

D7

There is no data available for the following orbits:

PVO Electric field data:
3601,3649,3651,3653,3656,3657,3660,3663,3670,3672,3674,3677,3681
3703,3711,3732,3756,3758,3761-3788,3800
3931,3986,3971,3972,3973
4011,4032,4057,4065,4080,4088,4096

PVO Magnetic field data:
3601,3649,3651,3657,3672
3703,3711,3732,3756,3758,3761-3788,3800
3931,3986,3971,3972,3973
4011,4032,4057,4065,4080,4088,4096

PVO Ephemeris data:
3601
3711,3761-3788,3800
3913,3971,3972,3973

D8

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes for First Venus Year.

Enclosed are four tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 1-225, which occured from Dec 5, 1978 to Jul 17 1979. These datasets contain an altitude range of 140-6400 km, and span one Venus year (one PVO orbit/24 hours).

The tapes are ANSI standard created on a VAX computer running the VMS operating system. Each dataset consists of three tape files: a header file of 80 character ASCII records, followed by a tape file containing the actual dataset and then an ASCII trailer file.

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 80 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns. The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column. Copies of the descriptor files for orbit 1 are enclosed.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time.

The magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

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SPAN: BRUNET::GORDON

D9

```
DATA  = PVHM0001.FFD
CDATE =  87 213 AUG  1  20:51:42
RECL  =    24
NCOLS =     5
NROWS =       5366
OPSYS = VAX/VMS
  # NAME      UNITS     SOURCE                    TYPE  LOC
001 UT        SEC       PVO                       T       0
002 BX SC     NT        PVO OMAG                  R       8
003 BY SC     NT        PVO OMAG                  R      12
004 BZ SC     NT        PVO OMAG                  R      16
005 BT        NT        PVO OMAG                  R      20
ABSTRACT
FIRST TIME          =  78 339 DEC  5  14:41:00.000
LAST TIME           =  78 339 DEC  5  15:42:00.000
OWNER               = HOANG
MISSING DATA FLAG   =  1.0000000E+32
AVERAGE INTERVAL    = HIGH RESOLUTION
ORBIT NUMBER(S)     =      1
PVOFF: Sat Aug  1, 1987  8:51:44 pm
END
```

D10

```
DATA  = PVHE0001.FFD
CDATE =  87 213 AUG  1  20:51:47
RECL  =    40
NCOLS =     9
NROWS =       5366
OPSYS = VAX/VMS
  # NAME       UNITS      SOURCE                    TYPE  LOC
001 UT         SEC        PVO                       T       0
002 E100HZ     (V/M)^2/H  PVO OEFD                  R       8
003 E730HZ     (V/M)^2/H  PVO OEFD                  R      12
004 E5.4KHZ    (V/M)^2/H  PVO OEFD                  R      16
005 E30KHZ     (V/M)^2/H  PVO OEFD                  R      20
006 E100 PH    DEG        PVO OEFD                  R      24
007 E730 PH    DEG        PVO OEFD                  R      28
008 E5.4K PH   DEG        PVO OEFD                  R      32
009 E30K PH    DEG        PVO OEFD                  R      36
ABSTRACT
FIRST TIME          =  78 339 DEC  5  14:41:00.000
LAST TIME           =  78 339 DEC  5  15:42:00.000
OWNER               = HOANG
MISSING DATA FLAG   =  1.0000000E+32
AVERAGE INTERVAL    = HIGH RESOLUTION
ORBIT NUMBER(S)     =      1
PVOFF: Sat Aug  1, 1987  8:51:49 pm
END
```

D11

```
DATA  = PVEP0001.FFD
CDATE =  87 213 AUG  1  20:51:51
RECL  =    64
NCOLS =    15
NROWS =         306
OPSYS = VAX/VMS
  # NAME       UNITS      SOURCE                    TYPE  LOC
001 UT         SEC        PVO                       T       0
002 X VSO      RV         PVO SEDR                  R       8
003 Y VSO      RV         PVO SEDR                  R      12
004 Z VSO      RV         PVO SEDR                  R      16
005 ALT        KM         PVO SEDR                  R      20
006 SZA        DEG        PVO SEDR                  R      24
007 PLONG      DEG        PVO SEDR                  R      28
008 PLAT       DEG        PVO SEDR                  R      32
009 SPX VSO               PVO SEDR                  R      36
010 SPY VSO               PVO SEDR                  R      40
011 SPZ VSO               PVO SEDR                  R      44
012 CLAT       DEG        PVO SEDR                  R      48
013 CLONG      DEG        PVO SEDR                  R      52
014 ELONG      DEG        PVO SEDR                  R      56
015 RSUN       AU         PVO SEDR                  R      60
ABSTRACT
FIRST TIME          =  78 339 DEC  5  14:41:00.000
LAST TIME           =  78 339 DEC  5  15:42:00.000
OWNER               = HOANG
MISSING DATA FLAG   =  1.0000000E+32
AVERAGE INTERVAL    =     00:00:12.000
ORBIT NUMBER(S)     =      1
PVOFF: Sat Aug  1, 1987  8:51:55 pm
END
```

D12

Documentation for Pioneer Venus Orbiter High Resolution
Magnetic & Electric Field Data Tapes for Second Venus Year.

Enclosed are three tapes of Pioneer Venus Orbiter high resolution magnetic field, electric field, position and attitude data. The magnetic and electric field data were taken by the OMAG and OEFD experiments, respectively, on PVO.

The tape datasets contain time series of one hour periods, centered on the periapsis times of orbits 226 - 251, and 282 - 450, which occurred from Jul 18, 1979 to Feb 28 1980. These datasets contain an altitude range of 140 - 6400 km, and span one Venus year (one PVO orbit/24 hours). (note: no data for orbits 252 - 281 due to superior conjunction).

The tapes are ANSI standard created on a VAX computer running the VMS operating system. Each dataset consists of three tape files: a header file of 80 character ASCII records, followed by a tape file containing the actual dataset and then an ASCII trailer file.

The PVO data for each orbit is contained in a pair of datasets: a descriptor file of 80 character, ASCII records, and a binary file of VAX floating point data. Each binary record represents a data point and contains a time column and associated data columns.
The descriptor file describes the format of the binary file, giving its record length in bytes, the number of records and columns, and name and unit labels for each data column. Copies of the descriptor files for orbit 229 are enclosed.

The time columns in the binary files are double precision (8-byte) floating point, and represent the number of seconds since 1966 Jan 01 00:00:00.000, in universal time.

The magnetic field data is in orthogonal vector form in spacecraft coordinates: Z is anti-parallel to the spacecraft spin axis, X-Z plane contains the sun. The spin axis is found in the position/attitude file as SPX,SPY & SPZ in VSO coordinates; see below.

The electric field data is the power spectral density of four frequency channels, centered on 100, 730, 5400 and 30k hz, in units of volts squared per meter squared per hertz. Also included is the phase angle wrt the sun.

The position and attitude are in Venus Solar Orbital coordinates. The Z axis is the orbital pole of Venus and X is the Venus-Sun line. Also included are the altitude, solar zenith angle and celestial latitude and longitude (1950.0).

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Univ. of Calif, Los Angeles
Los Angeles, CA 90024
(213) 206-6073

SPAN: BRUNET::GORDON

D13

```
DATA  = PVHM0229.FFD
CDATE =  88 034 FEB  3  15:26:53
RECL  =    24
NCOLS =     5
NROWS =      10121
OPSYS = VAX/VMS
  # NAME      UNITS     SOURCE                    TYPE  LOC
001 UT        SEC       PVO                       T       0
002 BX SC     NT        PVO OMAG                  R       8
003 BY SC     NT        PVO OMAG                  R      12
004 BZ SC     NT        PVO OMAG                  R      16
005 BT        NT        PVO OMAG                  R      20
ABSTRACT
FIRST TIME          =  79 202 JUL 21  21:36:00.000
LAST TIME           =  79 202 JUL 21  22:37:00.000
OWNER               = MURIEL
MISSING DATA FLAG   =  1.0000000E+32
AVERAGE INTERVAL    = HIGH RESOLUTION
ORBIT NUMBER(S)     =    229
PVOFF: Wed Feb  3, 1988  3:26:55 pm
END
```

Sample PVO Magnetic field descriptor file

```
DATA  = PVHM3602.FFD
CDATE =  92 078 MAR 18  13:49:27      UPDATE = 92 078 MAR 18  13:50:07
RECL  =    35
NCOLS =     2
NROWS =       3484
OPSYS = VAX/VMS
  # NAME      UNITS     SOURCE                    FORMAT
001 UT        YR MON DY HR MN SC MS               6I3.2,I4.3
002 BZ SC     NT        PVO MAG Pav along Z       G13.5
ABSTRACT
FIRST TIME          =  88 290 OCT 16  02:29:00.744
LAST TIME           =  88 290 OCT 16  03:29:59.765
OWNER               = MURIEL
MISSING DATA FLAG   =  1.000000E+32
AVERAGE INTERVAL    = HIGH RESOLUTION
ORBIT NUMBER(S)     =   3602
PVO EDR DATA PROCESSING, VERSION 1.5, UCLA, DATE: 91 199 JUL 18
FFMERGE:  92 078 MAR 18  13:49:27
  Data columns extracted from DISK$SCRATCH:[MURIEL.HIRES36]PVHM3602.FFH;
END
```

Sample PVO Electric field descriptor file

```
DATA  = PVHE3602.FFD
CDATE =  91 199 JUL 18  17:43:07
RECL  =   126
NCOLS =     9
NROWS =       3484
OPSYS = VAX/VMS
  # NAME       UNITS      SOURCE                      FORMAT
001 UT         YR MON DY HR MN SC MS                  6I3.2,I4.3
002 E100HZ     (V/M)^2/H PVO EFD                      G13.5
003 E730HZ     (V/M)^2/H PVO EFD                      G13.5
004 E5.4KHZ    (V/M)^2/H PVO EFD                      G13.5
005 E30KHZ     (V/M)^2/H PVO EFD                      G13.5
006 E100 PH    DEG        PVO EFD                     G13.5
007 E730 PH    DEG        PVO EFD                     G13.5
008 E5.4K PH   DEG        PVO EFD                     G13.5
009 E30K PH    DEG        PVO EFD                     G13.5
ABSTRACT
FIRST TIME          =  88 290 OCT 16  02:29:00.000
LAST TIME           =  88 290 OCT 16  03:30:00.000
OWNER               = debbie
MISSING DATA FLAG   =  1.000000E+32
AVERAGE INTERVAL    = HIGH RESOLUTION
ORBIT NUMBER(S)     =   3602
PVO EDR DATA PROCESSING, VERSION 1.5, UCLA, DATE: 91 199 JUL 18
END
```

Sample PVO ephemeris descriptor file

```
DATA  = PVEP3602.FFD
CDATE =  91 199 JUL 18  17:43:09      UPDATE = 92 069 MAR  9  10:56:00
RECL  =   204
NCOLS =    15
NROWS =        351
OPSYS = VAX/VMS
  # NAME      UNITS     SOURCE                      FORMAT
001 UT        YR MON DY HR MN SC MS                 6I3.2,I4.3
002 X VSO     RV        PVO SEDR                    G13.5
003 Y VSO     RV        PVO SEDR                    G13.5
004 Z VSO     RV        PVO SEDR                    G13.5
005 ALT       KM        PVO SEDR Altitude           G13.5
006 SZA       DEG       PVO SEDR Solar Zenith Ang   G13.5
007 PLONG     DEG       PVO SEDR Planetary long     G13.5
008 PLAT      DEG       PVO SEDR Planetary lat      G13.5
009 SPX VSO             PVO SEDR Spin axis x        G13.5
010 SPY VSO             PVO SEDR Spin axis y        G13.5
011 SPZ VSO             PVO SEDR Spin axis z        G13.5
012 CLAT      DEG       PVO SEDR Celestial lat      G13.5
013 CLONG     DEG       PVO SEDR Celestial long     G13.5
014 ELONG     DEG       PVO SEDR Earth cel long     G13.5
015 RSUN      AU        PVO SEDR Dist to Sun        G13.5
ABSTRACT
FIRST TIME          =  88 290 OCT 16  02:24:00.000
LAST TIME           =  88 290 OCT 16  03:35:00.000
OWNER               = debbie
MISSING DATA FLAG   =  1.000000E+32
AVERAGE INTERVAL    =     00:00:12.000
ORBIT NUMBER(S)     =   3602
PVO EDR DATA PROCESSING, VERSION 1.5, UCLA, DATE: 91 199 JUL 18
END
```

file 2

D-79514

```
*F.1  MODCOMP SOURCE EDITOR      DATE  02/05/90  08:52:28        PAGE   1

      1  DATA  = PVEP0451.FFD
      2  CDATE =  88 043 FEB 12  11:03:15
      3  RECL  =     64
      4  NCOLS =     15
      5  NROWS =          306
      6  CPSYS = VAX/VMS
      7     # NAME       UNITS      SOURCE                    TYPE  LOC
      8  001 UT         SEC        PVO                       I       0
      9  002 X VSO      RV         PVO SEDR                  R       8
     10  003 Y VSC      RV         PVO SEDR                  R      12
     11  004 Z VSC      RV         PVO SEDR                  R      16
     12  005 ALT        KM         PVO SEDR                  R      20
     13  006 SZA        DEG        PVO SEDR                  R      24
     14  007 PLONG      DEG        PVO SEDR                  R      28
     15  008 PLAT       DEG        PVO SEDR                  R      32
     16  009 SPX VSO               PVO SEDR                  R      36
     17  010 SPY VSO               PVO SEDR                  R      40
     18  011 SPZ VSC               PVO SEDR                  R      44
     19  012 CLAT       DEG        PVO SEDR                  R      48
     20  013 CLONG      DEG        PVO SEDR                  R      52
     21  014 ELONG      DEG        PVO SEDR                  R      56
     22  015 RSUN       AU         PVO SEDR                  R      60
     23  ABSTRACT
     24  FIRST TIME          =  80 060 FEB 29  09:10:00.000
     25  LAST TIME           =  80 060 FEB 29  10:11:00.000
     26  OWNER               = MURIEL
     27  MISSING DATA FLAG   =  1.70000000E+32
     28  AVERAGE INTERVAL    =      00:00:12.000
     29  ORBIT NUMBER(S)     =     451
     30  PVCFF: Fri Feb 12, 1988 11:03:19 am
     31  END
TOTAL RECORDS WRITTEN =     32/      32
REW SI
AVF SI 97
LIS
```

Same info as in the sample descriptor files provided by P.I. Except for the last 2 columns.

(CMN 2/97)